UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8960

November 15, 2007

Ms. Anita E. Masters
Senior NEPA Specialist
Tennessee Valley Authority
1101 Market Street, LP 5U
Chattanooga, Tennessee 37402

Subject: EPA NEPA Comments on TVA DEIS for "Rutherford-Williamson-Davidson Power Supply Improvement Project; Rutherford, Williamson, and Maury Counties, TN; CEQ #20070412; ERP #TVA-E08022-TN

Dear Ms. Masters:

The U.S. Environmental Protection Agency (EPA) has reviewed the subject Tennessee Valley Authority (TVA) Draft Environmental Impact Statement (DEIS) in accordance with our responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. TVA proposes to construct or upgrade a 500-kV substation and associated 500-kV and 161-kV power transmission lines in anticipation of additional growth in Middle Tennessee, which has been rapidly growing at a rate of 4.3 percent per year since 1990.

Alternatives

TVA initially screened four alternatives for the propose action. The four alternatives considered were described in the DEIS (pp. 12 to 19) and excerpted (pp. S-1 to S-2) below. Hereafter in this letter, these four initial options are referred to as the "new construction", "new construction and upgrade", "upgrade", and "conservation" alternatives, respectively.

* *New Brentwood 500-kV Substation and Associated Transmission Lines* – Construct and operate a new 500-kV substation in southwest Rutherford County, 25-30 miles of 500-kV transmission line on vacant, TVA-owned right-of-way (ROW), and about 23 miles of new 161-kV transmission lines in Rutherford, Maury, and Williamson counties.

* *New Brentwood 500-kV Substation and Transmission Line Upgrades* – Construct and operate a new 500-kV substation in northeast Williamson County near Brentwood and upgrade about 126 miles of existing 161-kV transmission lines. The transmission lines to be upgraded are in Davidson, Rutherford, Williamson, Sumner, Coffee, Franklin, and Bedford counties.

* *Pinhook 500-kV Substation Expansion and Associated Transmission Line Upgrades* – Expand TVA's Pinhook 500-kV Substation in southeast Davidson County and upgrade of about 134 miles of existing 161-kV transmission lines. These transmission lines are located in Davidson, Rutherford, Williamson, Sumner, Wilson, Franklin, and Bedford counties.

* *Load Management/Conservation* – Rely on load management and conservation by achieving a reduction in current peak loads by at least 800 megawatts.

The "new construction" (above first) alternative was selected by TVA as its preferred alternative. This action alternative as well as the No Action Alternative were the only alternatives that TVA carried forward for analysis in the DEIS, as Alternatives 2 and 1, respectively. TVA based its selection on overall costs, engineering problems, meeting the 2010 in-service date, and on the judgment that load management and conservation would not satisfy the project need. The preferred site and route were considered (pg. S-2) to have the least impacts as well as being the most cost effective.

From an environmental perspective, the "upgrade" (above third) alternative only involves upgrades. It therefore intuitively would be less environmentally damaging than the "new construction" alternative since it involves much less or no disruption of "greenfield" areas. However, we note (pg. 14) that these upgrades would cost more, include blasting during construction, and perhaps most importantly, involve outages during construction and line loss during operation. These constraints would also cause delays (2012) beyond the expected need (2010).

Per NEPA, the environmentally preferable alternative should be identified in the Final EIS (FEIS). Based on our review, that appears to be the "upgrade" alternative. Given its environmental benefits, the "upgrade" alternative should have also been a candidate for detailed EIS analysis for comparison against the TVA-preferred "new construction" alternative (Alt. 2) and the no action (Alt. 1). TVA may wish to re-consider the benefits and limitations of this alternative during its FEIS development.

Although the "conservation" (above fourth) alternative may not provide adequate or reliable baseload or transmission capabilities for future demand, EPA requests that the FEIS review what conservation incentives are being offered by TVA. These might include peak-load conservation incentives, green power options (active solar, wind, co-firing with energy grasses, home electricity generation with the option to sell excess power to TVA) as well as other options, with reference to any information available on the TVA website.

Project Impacts

Potential project environmental impacts include effects on surface waters, vegetation, wildlife, water quality, waters of the U.S. (streams, waterbodies, wetlands, floodplains, etc.), federally-listed endangered species, noise and air quality, cultural resources, EMF, and societal issues including EJ. EPA will primarily address water

quality, waters of the U.S., noise, EMF and EJ issues and defer endangered species and cultural resources to the U.S. Fish and Wildlife Service and Tennessee SHPO, respectively. We appreciate that coordination with these agencies has already been initiated. We offer the following comments for TVA's consideration and response in the FEIS:

* *Water Quality* – The project ROWs would cross several streams including the Harpeth River and others used for water supply. Such activities could cause increases in turbidity and siltation during construction. The DEIS (pg. S-5) indicates a potential for clearing riparian vegetation and stream canopy, but suggests that construction BMPs would minimize stream-bank clearing. While we agree with the use of BMPs, the FEIS should more importantly discuss stream-bank avoidance, i.e., could streams and stream bank vegetation be spanned by transmission lines to avoid clearing these sensitive areas? If unavoidable, stream-bank clearing should be minimized and quickly revegetated for soil erosion control.

Soil erosion should also be controlled along ROWs, particularly in sloped areas. We note that the proposed project would result in the clearing of 370 acres of forested land for the ROWs and the new substation to be located on a 53.1-acre site. It was suggested that vegetative impacts would be minimal since the project area is highly disturbed herbaceous vegetation (pg. S-6) and includes 40,000 acres of increased forestland. In order to help determine the magnitude of the project's proposed deforestation (particularly given that an "upgrade" alternative exists), the FEIS should discuss if these areas are silvicultural (monoculture) or truly reforested/afforested areas with diverse forest species. We also note that some proposed transmission line sections would cross over or near some designated managed areas and streams (pg. S-10). We will defer to the state or federal managers of these areas as to the significance of these crossings.

We note that care would be exercised when herbicides are used for ROW maintenance. We wish to emphasize the need to follow label directions and (as planned) to only use EPA-registered herbicides. Manual/Mechanical methods should replace herbicide use near waterways and karstic geologic features such as caves and sinkholes that may flood.

* *Waters of the U.S.* – The proposed ROWs and substation site includes 3.43 acres of wetlands, including 2.29 acres of forested, 2.04 acres of moderate quality and 0.1 acres of very high quality wetlands. The footprint of the actual project, however, would reportedly impact less acreage. Specifically, 2.29 acres forested wetlands would be converted to herbaceous wetlands along the ROWs while "[t]he construction and operation of the proposed Rutherford Substation would not directly affect wetlands" (pg. S-9), and the site also lies outside the floodplain. The FEIS should discuss how the ROW wetlands impacts would be addressed and any nationwide or individual permit requirements pursuant to Section 404 of the Clean Water Act (CWA).

Although 303(d) listed waterbodies occur in the area, the project will apparently not cross them. However, should they ultimately be crossed and impacted by the project, the

FEIS should disclose the 303(d) pollutants of concern and avoid exacerbation of those pollutants by the project.

* *EMF* – Since new ROWs for 500-kV transmission lines (as well as 161-kV lines) would be constructed (or existing vacant ROWs utilized) by TVA's preferred Alternative 2, we recommend that the ROWs be of adequate breadth to account for potential EMF impacts. Although international research on EMF effects have been inconclusive, we recommend that the potential for such effects be considered, particularly in populated areas and associated with high-voltage lines like 500-kV. We also recommend that no overhead lines be routed over residences or businesses for both 500-kV and 161-kV lines.

The DEIS (pg. 148) indicates that "[a]lthough no federal standards exist for maximum EMF strengths for transmission lines, six states (not including Tennessee), do have such standards." Moreover, it was stated that "[t]he expected strengths at the edge of the proposed ROW would fall well within these standards." We are pleased that such state standards will voluntarily be followed by TVA. We suggest that these standards for minimum ROW widths and the attenuation of EMF strengths at those distances from the centerline be disclosed. The FEIS should also verify that there are no industry or other guidelines or standards (e.g., Public Service Commission or equivalent oversight entity, or industry research group such as the Electric Power Research Institute: EPRI) regarding minimum ROW widths for various line magnitudes (especially 500-kV). Finally, would these state standards also be satisfied by the existing ROWs associated with the above "upgrade" alternative?

While EMF guidelines/standards are important to help protect public health, ROW design must also consider minimizing impacts to wetlands and other sensitive areas along ROWs consistent with the CWA and EO 11990. Slight alignments shifts may be helpful in addressing both EMF and wetland issues.

* *EJ* – The DEIS (pg. S-14) states that "[t]here is potential for environmental justice impacts (disproportionate impacts on low-income and minority populations) as a result of the construction and operation of the proposed substation and transmission lines." Some examples are cited (Maury and Williamson counties) where project areas along the ROW have higher EJ concentrations that the county. These examples are further addressed in the text (pg. 145) but are not supported with data. The FEIS should provide a numeric comparison (using U.S. Census percentages) between project sections and larger, encompassing areas (block groups, counties, etc.) for these areas of potential impact. A final determination of any EJ impacts should be provided in the FEIS for the potential EJ areas of concern, and any offsets for impacts suggested as appropriate.

* *Noise and Air Quality* – Noise and air emissions need not be significant for the project. However, we recommend that they be briefly addressed in the FEIS for project construction as well as operation (little air and noise quality information was found in the DEIS other than reference to the occasional "hissing or crackling" of high-voltage 500-kV lines: pg. 146). Basic noise levels for construction equipment should be provided and can be located and cited from the literature. All construction equipment should be

properly tuned to minimize air emissions and be equipped with appropriate mufflers and engine housings to minimize noise levels. The length of construction time should also be estimated to help define the magnitude of the construction impacts. Any substantive operational noise beyond the fenceline of the proposed substation should also be disclosed as well as discussion on the number of nearby residents.

To further help minimize construction air emissions, we recommend the use of reduced idling practices, cleaner fuels, and emission retrofits for construction equipment used by TVA contractors whenever feasible. TVA may wish to discuss this further with EPA Region 4 (Dale Aspy at 404/562-9041).

* *Visual Effects* – Siting new transmission lines to maximize screening of mature trees and rolling landscape or collocated with other lines, visual effects can be lessened. In addition, the pole supports of major lines such as 500-kV, also visually affect the area. The FEIS should address what type of line poles will be used (especially for the 500-kV line) and if metallic poles will be colored or left as metallic. Have any surveys been done over the years regarding public preference as to which color is considered to blend best with various environmental landscapes and backgrounds (e.g., trees vs. rolling topography vs. sky), and what is the predominant landscape of the project area?

Recommendations & Rating

The TVA preferred Alternative 2 would affect greenfields by proposing to construct and operate a new 500-kV substation and associated new 500-kV and 161-kV transmission lines on new or vacant ROW. Our primary environmental concerns involve the potential for ROW line construction to impact water quality, wetlands and remove riparian vegetation at waterway crossings (unless waterways are successfully spanned) as well as the additional conversion of forested wetlands along the ROWs. In addition, new lines would likely be perceived by most of the public as new visual impacts. Other project impacts are less clear pending further discussion with regulatory agencies. These impacts should be further addressed in the FEIS. In contrast, we note that the new ROW distances for TVA's preferred alternative will be relatively short and the proposal will partly utilize existing (vacant) TVA ROW, and that impacts to the new substation site need not be substantive.

For the FEIS, EPA also recommends that the "upgrade" alternative be acknowledged as the environmentally preferred alternative since it does not involve greenfield construction and the associated impacts. For comparison against Alternatives 1 and 2, it would also have been beneficial to have carried the "upgrade" alternative forward in the EIS for detailed analysis.

EPA rates this DEIS as an "EC-2" (Environmental Concerns, additional information requested in the FEIS). We base this rating on potential water quality and wetland impacts on new alignment and the additional information requested.

We appreciate the opportunity to review this DEIS. Should you have questions on our comments, please contact Chris Hoberg of my staff at 404/562-9619 or hoberg.chris@epa.gov.

Sincerely,

Heinz J. Mueller, Chief
NEPA Program Office
Office of Policy and Management